

REPORT OF DEPUTATION²

APPOINTED BY

THE BOARD OF POLICE

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AND OTHER CITIES IN THE KINGDOM, WHERE
USEFUL INFORMATION REGARDING THE



CONSTRUCTION OF SMALL-POX HOSPITALS

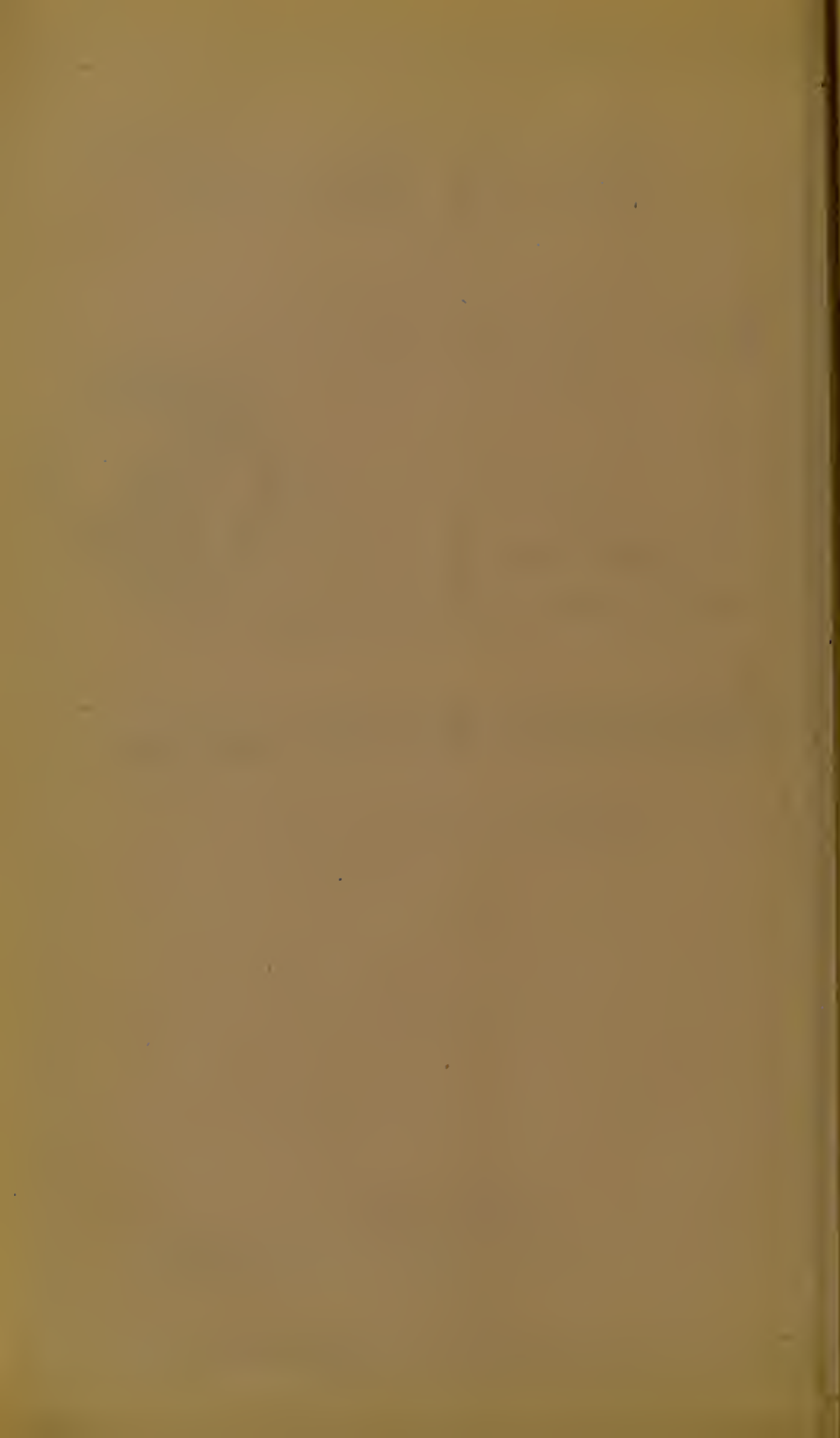
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EXTRACT *from* MINUTES *of* MEETING *of* the BOARD *of* POLICE
OF GLASGOW, *held on* 17th Nov., 1873.

BAILIE WALLS, IN THE CHAIR.

“The Committee of Health reported the following Extract from their Minutes:—‘The Committee having fully considered the subject of erecting an Hospital at Belvidere for Small-pox Patients, on the site recommended in the Report by Drs. Gairdner and Russell, and the Master of Works, submitted to the Board, on 9th September, 1872, and having examined the Plans of the proposed Hospital which had been prepared by Mr. Carrick, and keeping in view the complaints made against continuing the Hospital at Parliamentary Road for the treatment of Small-pox Patients, and relative Reports by the Medical Officer, the Committee agreed to recommend that the erection of a Small-pox Hospital at Belvidere should not be further delayed, and that the Plans thereof submitted by Mr. Carrick be approved of, and the Clerk authorized to advertise for offers for the erection of the Buildings.’ The Board approved of the foregoing Minute, but in respect of the magnitude and importance of the interests involved in the subject appointed the following gentlemen, viz., Messrs. Ure and M‘Lellan, and the Medical Officer and Master of Works, to proceed to London and other Cities in the Kingdom where useful information regarding the construction of Small-pox Hospitals is likely to be obtained, and to report to the Board the result of the investigations, and delay proceedings further in the matter until said Report is given in.”

JOHN LANG, *Clerk*.



REPORT OF DEPUTATION.

THE Deputation visited and inspected with more or less minuteness four of the Hospitals erected by the Metropolitan Asylums Board (viz., the small-pox hospital and fever hospital at Stockwell, the small-pox hospital and fever hospital at Homerton); the London Fever Hospital, Liverpool Road; also, St. Thomas' Hospital, as being the newest and grandest General Hospital in the kingdom, and the Herbert Hospital at Woolwich, as reputed to be the finest specimen of a pavilion hospital in existence. From London we proceeded to Bradford, where we saw a new pavilion hospital for infectious diseases.

During our tour we took advantage of such opportunities as occurred of gaining information on other departments of Sanitary work than that expressly contained in our Commission. When in London, accompanied by Bailie Bain, we visited the Phosphate Sewage Company's Works, at Barking. We also visited the poorer parts of Whitechapel, inspecting many of the houses, and examining the sanitary arrangements of the courts, under the guidance of Inspectors furnished by Dr. Liddle, Medical Officer of Health. At Bradford we visited the extensive Defecation Works, erected in the suburbs for the treatment of the Town Sewage, according to the system of the Peat Engineering and Sewage Filtration Company; and in company of Dr. Butterfield, Medical Officer of Health, made a tour of the lower parts of the town. From Bradford we went to Rochdale in order to make ourselves acquainted with the famous Rochdale system of disposing of town refuse. In view of the proposal to erect public Mortuaries in Glasgow, which is before the Board, we also visited Liverpool, where they have been in use for three years. Dr. Russell remained a day longer there than the other members of the deputation, and with an inspector provided by Dr. Trench, examined the house accommodation and sanitary arrangements of the worst parts of Scotland and Vauxhall Wards. He also visited Netherfield Road Hospital for the treatment of private cases of infectious disease.

Before proceeding further, we beg to record our best thanks to J. A. S. Stewart, Esq., and J. Charrington, Esq., Chairmen of the Stockwell and Homerton Hospital Committees, and to the officials in charge of the various hospitals, for the facilities afforded us to make our inspections, and their attention during our visits. Through the kindness of T. H. Wyatt, Esq., architect, we obtained the loan of the complete working plans of Stockwell Small-pox Hospital, and we obtained the same favour in reference to both Fever and Small-pox Hospitals at Homerton. We despatched these plans to Glasgow, and tracings of them were taken in the Master of Works' Office. We must also say how much obliged we feel to Dr. Huntley Gordon, Surgeon-General, Herbert Hospital, Woolwich, for the time and pains expended in showing us all the well-considered details of that splendid Hospital.

The most important part of the Report we have to present as the result of our inspections of the hospitals enumerated above, is in reality the amended plans of the proposed Small-pox Hospital, which are herewith submitted. Since our return, we have had repeated meetings and consultations over those plans. It is scarcely possible to embody, in writing, all the details noted and utilised; but we shall endeavour to state the principal results of our observations in regard to Epidemic Hospital construction.

The pavilion system seems now universally accepted as the only one suited for the treatment of contagious diseases.

The pavilions of the London Hospitals were all two storeys in height. This is undoubtedly a deviation from the original idea of a pavilion, caused by the value of ground, and we recommend that in our case we should adhere to the open-roofed ward—raised from the ground level, so as to allow a free space between the floor and the ground—which has been adopted in our existing hospitals. It is indeed doubtful whether, taking into account the additional space between two-storeyed pavilions as compared with one-storeyed, and the utilized cubic contents of the open roof in the latter, the saving of expense effected by the adoption of the loftier pavilion is of material importance.

Another important feature in all the hospitals inspected, was the union of the pavilions by covered and enclosed passages or "corridors." In our present hospitals no such connection exists, and we report decidedly in favour of our own plans. The essential idea of the pavilion is the isolation of

the hospital unit or ward by open air. To provide a continuous communication between the wards or blocks by closed corridors is, therefore, a sacrifice of the essential idea to administrative convenience. Although it was obvious that attempts, more or less thorough, had been made by the architects of the several hospitals to neutralize by abundant ventilation the radical defects of a corridor, still the success of those attempts was only partial, and by at least two of the Medical Superintendents the inconsistency of the corridor was acknowledged. The corridors of the Herbert Hospital, Woolwich (a general hospital), are the most unobjectionable that could be devised, but they are all the more expensive. If any provision is to be made for communication, we can approve only of a covered way, with sides entirely open, such as unites the pavilions of the Herbert Hospital with the administrative block.

Coming to the hospital unit or ward, the dimensions of the wards of the small-pox hospitals erected by the Metropolitan Asylums' Board at Stockwell and Homerton are—

Length, 70 feet; breadth, 26 feet; height, 14 feet; number of beds, 12.

This gives to each patient a cubic space of 2123 feet. In our present hospitals we have only 1500 cubic feet, and have always been satisfied both with the purity of their atmosphere and the comparative curative results. Still we feel disposed to yield to the universal practice in all the epidemic hospitals recently erected, and to adopt 2000 cubic feet.

The disposition of the cubic space in reference to the bed is a matter of equal importance with the amount per bed. In a ward each bed may be regarded as having a block of air to itself. It is quite clear that the same cubic space may be obtained with the most variable dimensions of this block. If the ward is too broad, then the beds will be too close laterally, and the ceiling may be low; if it is too narrow, then there will not be enough room to pass up and down the ward freely. All the wards we examined are much broader than in our hospitals. The breadth given above is 26 feet, while the Fever Hospital at Homerton is 28 feet broad. Our pavilions are only 20 feet broad. We think that this is nearer the proper width; but in order to preserve symmetry in the allotment of the increased cubic space, we propose for the new wards a width of 22 feet.

Here the question of accommodation for convalescent patients arises. In the hospitals inspected, "day-rooms"

were provided in which convalescents sat during the day, but returned to the ward to sleep. Our practice has always been to provide a distinct "convalescent ward," in which convalescents both slept and sat. This plan has the advantage of separating those who have recovered from those who are still ill and possibly dying, both by day and by night. Any disadvantage from sitting and sleeping in the same room is imaginary as contrasted with that of sleeping in the main ward, especially as convalescents, in suitable weather, spend most of their time out of doors. While, therefore, proposing to retain the "convalescent ward," some improvements are suggested: (1) As the patients will be going about and much out of doors, the increased cubic space is unnecessary; (2) To afford more room for those who are moving about, the "convalescent ward" should be two feet broader than the main ward; (3) As a larger proportion of small-pox patients than of fever patients are convalescent at one time, the distribution of the beds may be altered from 11 and 5 to 10 and 6 for acute and convalescent wards.

We, therefore, recommend that the dimensions of the acute wards should be—

Length, 56 feet 6 inches; breadth, 22 feet; height (average), $16\frac{1}{2}$ feet;
number of beds, 10.

Each bed will, in this way, stand in an area of floor space 11 feet by 11 feet $3\frac{3}{5}$ inches, with an average height of $16\frac{1}{2}$ feet.

For the convalescent ward, we recommend—

Length, $21\frac{1}{2}$ feet; breadth, 24 feet; height, $16\frac{1}{2}$ feet; number of beds, 6.

This gives a cubic space of 1419 feet to each bed.

Equal in importance to the dimensions and cubic space of air allotted to each bed is the means provided for its regular and rapid renewal, *i.e.*, the ventilation. We found arrangements more complicated, but none more effective than those with which we are familiar in our present hospitals.

Closely associated with the purity of the atmosphere of the ward is the nature of the exposed surfaces—the walls, roof, and floor. It is very important (1) that they should be as impervious as possible, and (2) that they should be smooth, and that no horizontal surfaces should afford a lodgment for dust, and those organic particles which abound in the atmosphere of a hospital. This latter condition is easily fulfilled, and as a considerable aid in that direction we recommend that in the construction of the open roof the principal

rafters should be of light T iron, and the ties of thin rod-iron.

The making of the walls, &c., impervious is a more difficult question. All the hospitals visited in London have their walls, &c., coated with Parian cement, excepting at Homerton, where they are faced with best pressed brick and painted with silicate. In all cases we found the Parian discoloured and somewhat blotchy, especially in St. Thomas', where an attempt to secure uniformity by introducing distemper into the cement had signally failed. In order to aid the Board to a decision, we have procured estimates of the comparative cost of Parian cement, Keene's cement, white enamelled brick, and best pressed brick painted with silicate.* The wood-work of the roof, we think, should be varnished.

To make the floor impervious is of still greater importance, but it is also more difficult. That part of the floor running along beneath the beds, especially in an Epidemic Hospital, is certain to be bathed in foul fluids from time to time, and, should the seams be wide and the wood porous, it is impossible by any washing to prevent the impregnation of the timber, and the giving off of noxious effluvia. In any case, the washing of hospital floors made of deal, and the subsequent drying in the unavoidable presence of the patients, is not pleasant and cannot but be injurious. The ward floors of the Herbert Hospital and St. Thomas' Hospital are oak (Dantzic oak, as described in the specification of the Herbert Hospital), and in the words of Galton's Report on the former hospital, "have been carefully oiled and bees' waxed so as to be maintained clean by rubbing, without the necessity of frequent washing which renders the wards damp." At St. Thomas' the waxing had been abandoned; but even without this process a floor of oak closely laid presents in comparison with an ordinary deal floor an impervious surface. We recommend this matter to the consideration of the Board.

Another matter in relation to the pavilions may be noted. We recommend the providing of hot water for baths, &c., not from a large central boiler, but from a small portable boiler, with an open fireplace, in the bath-room of each ward. In our present hospitals we have experience of both systems. The former is not suited for Pavilion Hospitals, especially such as ours. There is a great loss of heat and consequent expenditure of fuel in sending hot water over such a wide area. The more each ward of a Pavilion Hospital can be made self-

* See Appendix.

contained the better. At Belvidere all the wards are supplied with boilers, and each nurse can manage her own firing and hot water supply. If the best form of boiler is selected, and it is raised so as to allow the hot water to gravitate to the points where it is needed, we are satisfied the supply would be more uniform, and the saving of fuel considerable.

It seems unnecessary to enter into any written description of the minor points of ward construction, or of the arrangements of the administrative blocks, for which it may suffice to refer to the plans.

As to the scale on which the administration should be planned, we advise, that it should be in excess of the immediate requirements of the wards presently to be erected. These will contain 160 beds, but it might be necessary under epidemic pressure to run up additional temporary pavilions, for which the site affords ample room. In that case the administration would have extra demands made upon it. This is the part of a hospital which is least capable of hurried and temporary extension, and it is therefore wise to be liberal in the primary provisions made. The kitchen, provision, and clothes store, and especially the nurses' sleeping accommodation should be of ample size and extent.

In reference to the nurses' dormitories, we think it essential to the improvement of the status of our nurses, which is so difficult to maintain, that they should each be provided with a sleeping room. There ought also to be a commodious sitting-room, which might be used as a dining-room. These apartments should be entirely away from the wards. For discipline, it is recommended that they should communicate with the Matron's house. All these points have been effected in the plans.

In the administrative blocks the buildings need not be restricted as to height. By the addition of a storey to the kitchen and store range, the scrubbers may be accommodated, and additional room for storage of bedding and napery obtained.

There is one matter to which we must allude before concluding—the disposal of the excreta from the Hospital. We regret that we saw nothing in the course of our inspections to inform or instruct us in this respect. The excreta from every one of the hospitals enumerated, infected and uninfected, passed directly into the local sewer-system without even systematic attempts at disinfection. It seems to us inconsistent with the primary object of a hospital for

infectious diseases, viz., *prevention*, that while we wash and disinfect his clothes, and retain his body even per force, we should allow a patient's excreta to pass from day to day into the public sewers. There is no doubt that by absolutely destroying all the excreta and effluvia given off from a person ill of an infectious disease, we diminish by so much the specific infecting matter in existence, and make a step towards exterminating that particular disease. We would, therefore, in this respect, advise the Board not to follow the example of the hospitals we visited. We have had in practice for many months, at the present Small-pox Hospital, a method by which no excreta reach the sewers, and we think it is worthy of consideration whether, with such modifications of details as experience has shown to be necessary, the charcoal system should not be adopted in both hospitals at Belvidere. However it may be accomplished, we ought to resolve that no excreta shall leave the hospital in a state in which they can spread specific poison.

As to the general sanitary matters, such as disposal of refuse, house construction, &c., &c., to which, as we have said, we gave some attention during our tour, we shall reserve the results of our observations for another occasion.

JOHN URE.

A. H. M'LELLAN.

JAS. B. RUSSELL, M.D.

APPENDIX.

		Sqre. Yds.		Cost per Pavillion.
White Enamelled Brick,	...	455 @ 13s. 6d.	...	£307 2 6
Cream Coloured ,,	...	455 @ 8s. 6d.	...	193 7 6
Best Pressed Red ,,	...	455 @ 5s.	...	113 15 0
1st Quality Keene's Cement,	...	455 @ 6s. 9d.	...	153 11 3
2nd ,,	...	455 @ 5s. 3d.	...	119 8 9
Parian Cement,	...	455 @ 7s. 6d.	...	170 12 6
3 Coats Plaster,	...	455 @ 7d.	...	13 5 5
3 ,, Silicate,	...	455 @ 5½d.	...	10 8 6½
2 ,,	...	455 @ 4¼d.	...	8 1 1¾